

Tempe Aviation Commission

IGA Monitoring Report

Month:

October 2004

Prepared by:

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1. Introduction

This report is prepared by TAVCO to monitor the compliance of operations at Phoenix Sky Harbor International Airport with certain noise mitigation flight procedures over the City of Tempe. The Tempe Aviation Commission (TAVCO) consists of Tempe residents selected by the Tempe Mayor and City Council to assist and advice on aviation issues. The City of Tempe is located directly east of the Phoenix Sky Harbor International Airport in Phoenix, which has 3 parallel runways, Runway 8/26, Runway 7L/25R and Runway 7R/25L.

In 1994 the City of Phoenix and the City of Tempe agreed to continue noise mitigation flight procedures already in use over Tempe and to introduce a new procedure for aircraft arriving over Tempe to the new third runway (7R/25L) at Phoenix Sky Harbor International Airport from the east. Tempe had prior to the agreement challenged the plans for the construction of a third runway because of inadequate assessment of the environmental impacts.

a) The 4-DME procedure

The 1993 Environmental Impact Statement (EIS)

According to the EIS, which among other planned improvements included the construction of a third runway, departures to the east from the new runway would follow the so-called "One-DME" Standard Instrument Departure procedure (SID) similar to the SID already in use by aircraft departing to the east from the airport¹.

Standard Instrument Departure Procedure (SID)

The 1994 Record of Decision

The continued use of the "One-DME procedure" was also stated in the Record of Decision (ROD) where the FAA approved the plans for a third runway. When Phoenix and Tempe signed the Intergovernmental Agreement (IGA) on noise mitigation flight procedures over Tempe, the FAA reaffirmed its commitment to uphold these procedures. The "One-DME procedure" became the "4-DME procedure" when a navigational aid (VORTAC) was moved.



North Runway 8L (Now 8): "Fly heading 085° to intercept PHX-075, across PXR R-350 at or below 3,000'. At 4 DME east of PHX VORTAC, turn right/left"
Center Runway 8R (Now 7L): "Fly direct PHX VORTAC, cross PHR at or below 3,000'. Proceed via PHX R-075 to 4 DME east, turn right/left" (FAA SW-1 of August 10, 2000)

Measure for Departure Procedure Compliance

Based on the 4-DME Standard Instrument Departure procedure (SID) TAVCO proposed a corridor along the Salt River to measure how commercial jet aircraft and large turboprop aircraft² complied with the "4-DME procedure" using the Noise and Flight Track Monitoring System that the airport had agreed to install. This proposal was adopted by the Tempe City Council, but was rejected by the City of Phoenix. The airport use a vertical line to measure compliance of jet departures called the "4-DME Gate" or the "Exit Window Only Gate", which is a 5,500 feet long imaginary line running

¹ Source: Final Environmental Impact Statement Phoenix sky Harbor International Airport Master Plan Update Improvements, November 1993, Section 5.

² Aircraft certified and operated according to Title 14 FAR Part 121 or 135 with gross weight exceeding 12,500 pounds.

north south at 4-DME or approximately at Price Road. Turns by carrier jets north or south away from the Salt riverbed before reaching this line, or failures to stay inside the north or south end of this line are registered and in a compiled format submitted to the airlines in a "Notice of Deviation" letter by the airport. Deviations influenced by local weather conditions are excluded from the notification procedure.

This report compares departure compliance using the Tempe Corridor and the Phoenix "4-DME Gate" or "Exit Window Only Gate", and includes large turboprop aircraft because they are part of the 1994 agreement. Since the implementation of the "4-DME Gate" deviation standard for large carriers in 1997, the main issue of concern has been how well these aircraft on departure from Phoenix Sky Harbor International Airport to the east keep to the Salt riverbed and avoid flying over populated areas in Tempe.

b) The "Side Step" procedure

This is a noise mitigating procedure for jets and large turboprop aircraft that approach Phoenix Sky Harbor International Airport from the east to land on the new south runway, Runway 25L. Aircraft are directed to approach the center runway, Runway 25R, until they are 3 NM from the runway end or abeam Sun Devil Stadium at Mill Avenue in Tempe. At this point the pilot can be requested by the Phoenix Air Traffic Control to change the approach course to land on Runway 25L. When the pilot directs the aircraft from a stabilized approach to the Runway 25R towards the left and line up for landing on Runway 25L, the pilot performs a "side step procedure". This procedure is designed to keep large aircraft approaches over the river bed as long as possible before they close in towards neighborhoods in downtown Tempe south of the riverbed.



No measure has been set up in the airport Noise and Flight Track Monitoring System to monitor the use of this procedure, and in its present format this report does not include any data on the utilization of the "side step" procedure.

On March 27, 2002 the FAA suspended implementation of a charted "side step" procedure because of flight safety concerns. Presently the FAA is clearing jets and large turboprop aircraft for straight-in approaches to Runway 25L from the east.

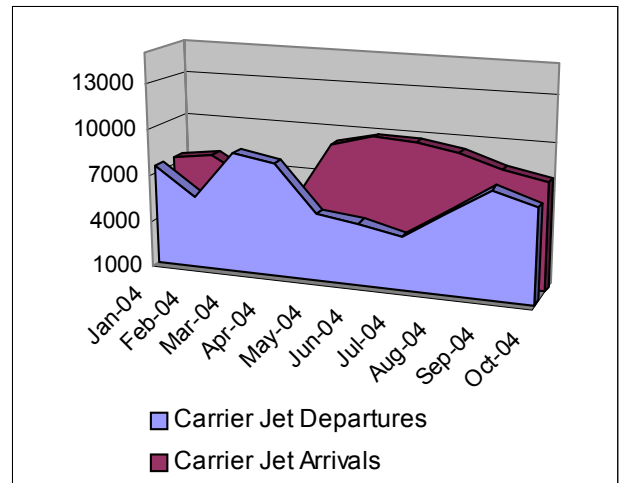
c) Departure Split (Equalization)

This procedure attempts to disperse evenly on an annual basis the noise impact of departing eastbound and westbound aircraft between Tempe and Phoenix during day and nighttime hours.

2. Aircraft Operations

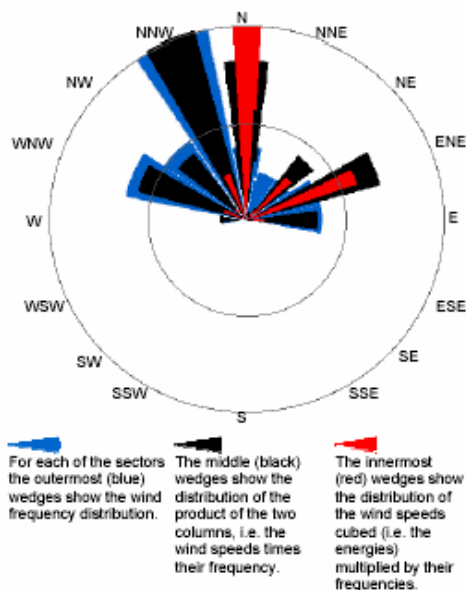
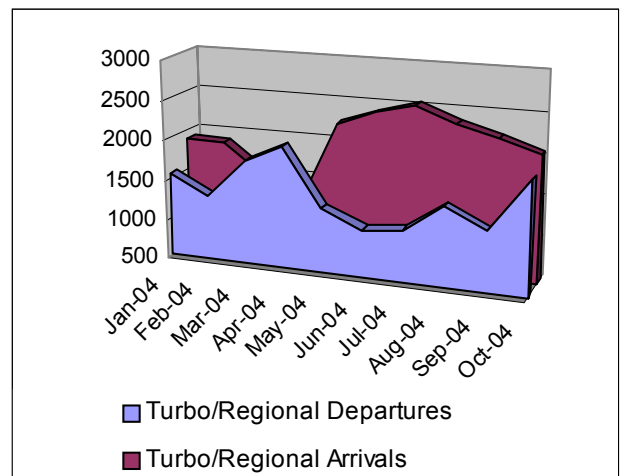
Carrier Aircraft

The number of large carrier jets departing to the east during the month of October 2004 decreased 11.0% compared to September 2004. Carrier arrival operations from the east towards the west decreased 7.2% compared to operations in September 2004.



Regional Jets & Large Turboprop Aircraft

Regional jets and large turboprop departures towards the east increased by 52.7% in October 2004 compared to September 2004. The number of regional jets and large turboprop aircraft arriving from the east decreased by 6.9% compared to the previous month.

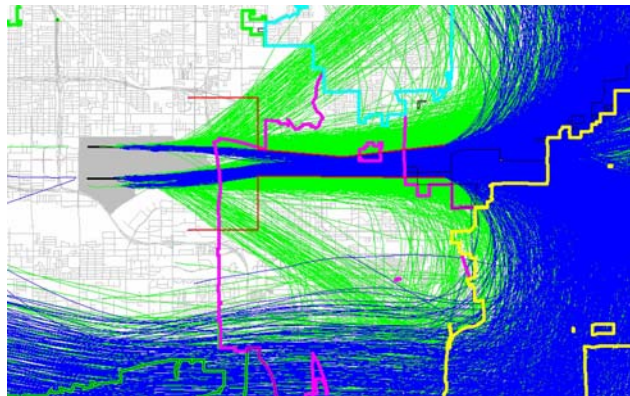


Moderate winds mainly from the north and northwest with gusts up to moderate breeze, 15.6 knots, during one midday period.

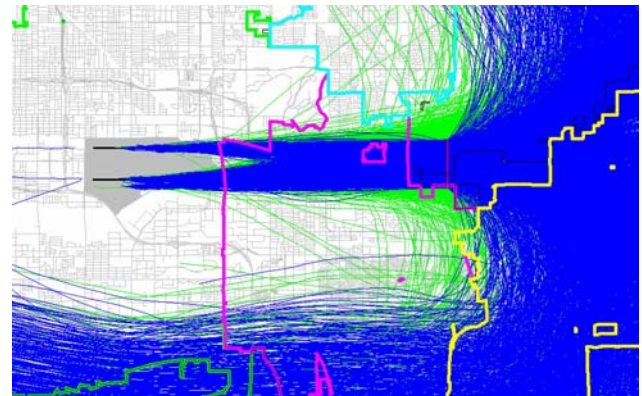
3. Departure Compliance

Compliance Rates

Including the large turboprop aircraft, which routinely are routed on approximate departure angles of 120° towards the southeast and 60° towards the northeast, **62.8%** of all jet and larger turboprop aircraft departures to the east complied with the Tempe Corridor during the month of October 2004. 96.8% of the jets complied with the Phoenix 4 DME gate. Departures by large turboprop aircraft are not included in the Phoenix gate compliance rate.

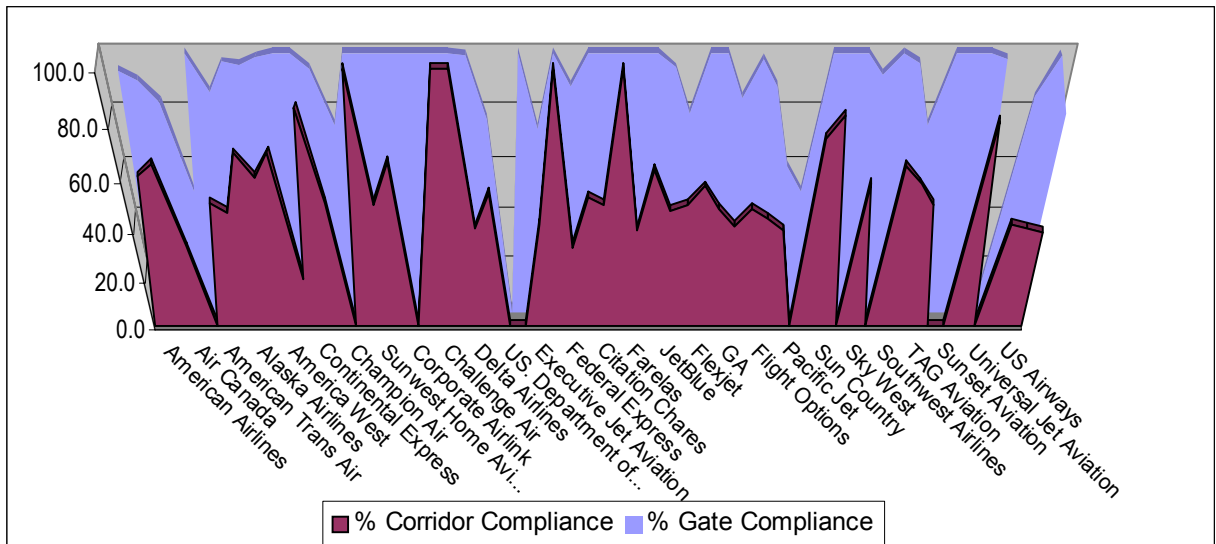


Flight tracks inside the Tempe Corridor are depicted in blue.



Flight tracks inside the Phoenix Gate are depicted in blue.

Carrier	ICAO Code	%	Carrier	ICAO Code	%	Carrier	ICAO Code	%
American Airlines	AAL	60.9	Air Transport	CYO	100.0	Flight Options	OPT	44.4
Airborne Express	ABX	65.6	Delta Airlines	DAL	40.3	Piedmont Aviation Services	PCE	40.0
Air Canada	ACA	33.3	DHL Airways	DHL	54.5	Pacific Jet	PCJ	0.0
Ameristar Jet Charter	AJI	0.0	US Department of Justice	DOJ	0.0	Air Mobility Command	RCH	75.0
American Trans Air	AMT	50.6	East Coast Jets	ECJ	0.0	Sun Country	SCX	83.3
Aero Mexico	AMX	46.7	Executive Jet Aviation	EJA	42.1	Spirit Aviation	SJJ	0.0
Alaska Airlines	ASA	69.7	Executive Management	EJM	100.0	Sky West	SKW	58.3
Mesa Airlines	ASH	60.7	Federal Express	FDX	32.6	Sierra Pacific	SPA	0.0
America West	AWE	70.0	Frontier Airlines	FFT	52.9	Southwest Airlines	SWA	64.7
British Airways	BAW	20.0	Citation Chares	FIV	50.0	Swift Air	SWQ	58.3
Continental Express	BTA	86.4	FINFO Flight Inspection	FLC	100.0	TAG Aviation	TAG	50.0
Atlantic Southeast	CAA	50.7	Farelas	FRL	39.6	Transmeridian Airlines	TRZ	0.0
Champion Air	CCP	0.0	Hawaiian Airlines	HAL	63.6	Sunset Aviation	TWY	0.0
Cherry Air	CCY	100.0	JetBlue	JBU	47.6	United Airlines	UAL	81.2
Sunwest Home Aviation	CNK	50.0	Kitty Hawk Air Cargo	KHA	50.0	Universal Jet Aviation	UEJ	0.0
Continental	COA	66.3	Flexjet	LXJ	57.1	United Parcel Service	UPS	42.6
Corporate Airlin	COO	0.0	Midwest Express	MEP	48.4	US Airways	USA	40.9
Custom Air Transport	CTT	50.0	GA	N		US Check Airlines	USC	39.4
Challenge Air	CWC	100.6	Northwest Airlines	NWA	41.5	Westjet	WJA	100.0

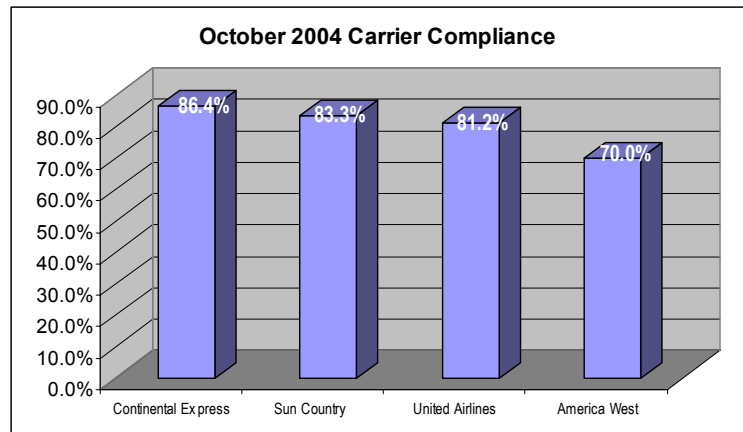


Departures excluded³:

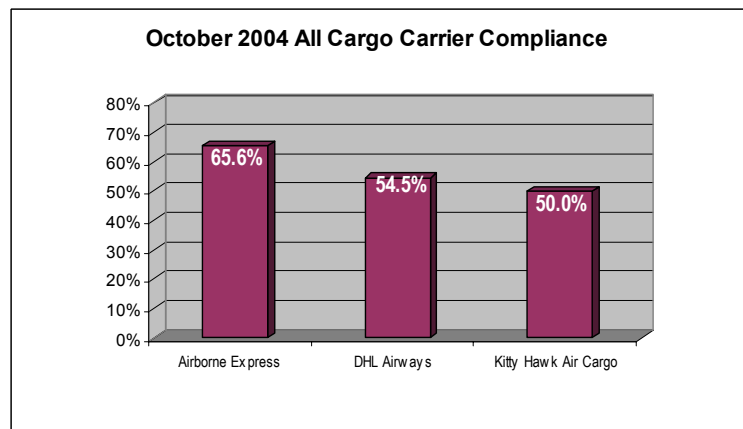
10/2/2004 3:16 - 4:09 PM	10/10/2004 6:15 - 7:54 AM	10/20/2004 2:01 - 2:38 PM
10/3/2004 7:22 - 7:44 AM	10/13/2004 7:06 - 10:00 PM	10/21/2004 6:05 AM - 12:11 PM
10/9/2004 7:03 - 7:48 AM	10/20/2004 6:08 - 7:54 AM	10/21/2004 6:10 - 8:28 PM
10/9/2004 1:20 - 2:04 PM	10/20/2004 11:01 - 11:56 AM	10/27/2004 6:07 - 10:45 AM

Top Airlines

Among the carriers with over 10 departures to the east during the month of October 2004, 4 had 70% or more of their aircraft stay within the Tempe Corridor. These are similar rates to what was accomplished in September 2004.



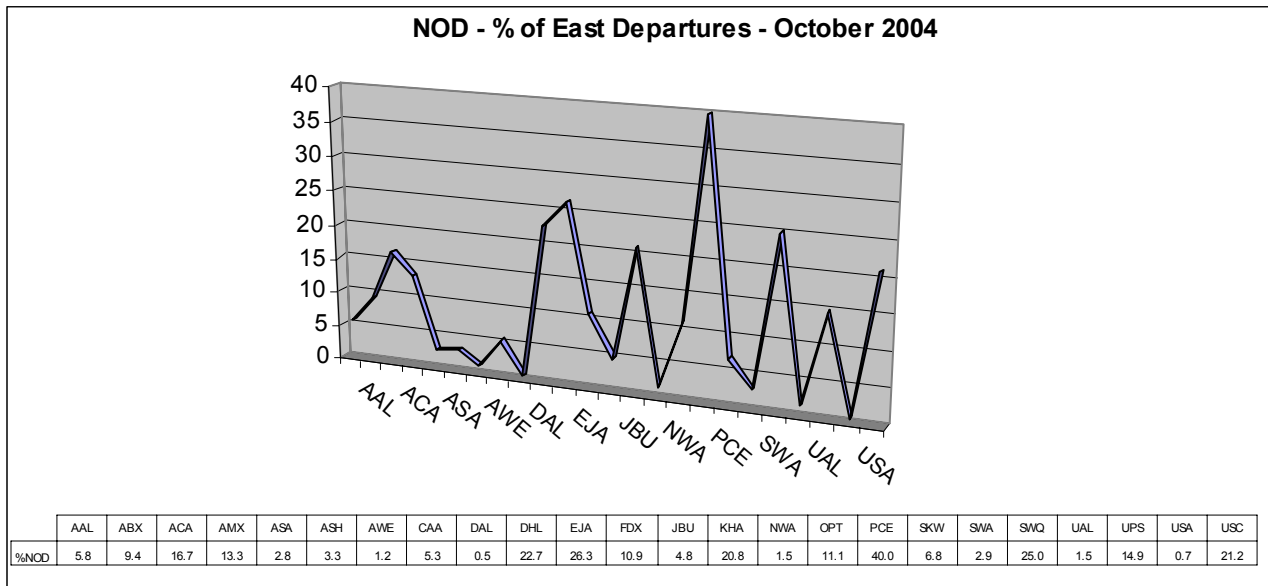
The compliance rates for the top cargo carriers with more than 10 departures to the east during the month of October 2004 were also similar to last month when the top 3 carriers had between 45 and 65.7% of their aircraft in compliance with the Tempe Corridor.



³ Based on City of Phoenix evaluations of weather influencing navigation east to 4DME.

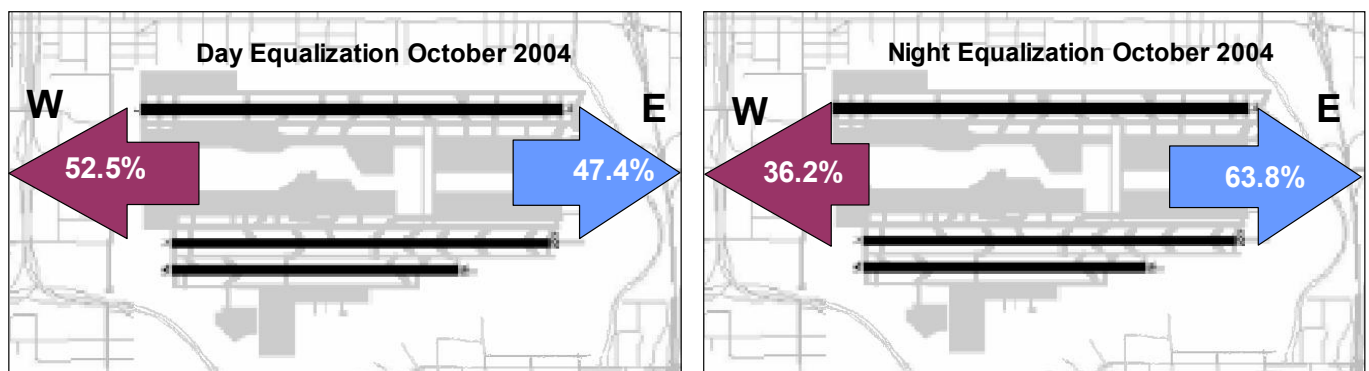
Notice of Deviation

The City of Phoenix issues Notice of Deviation (NOD) to airlines and operators of smaller jet aircraft if any of their jets fails to comply with the 4DME Gate. Among the airlines with at least 5 departures to the east during the month of October 2004, Piedmont Aviation Services, Executive Jet Aviation, and Swift Air received the most notices relative to the number of east departures registered for each operator.



4. East/West Departure Split

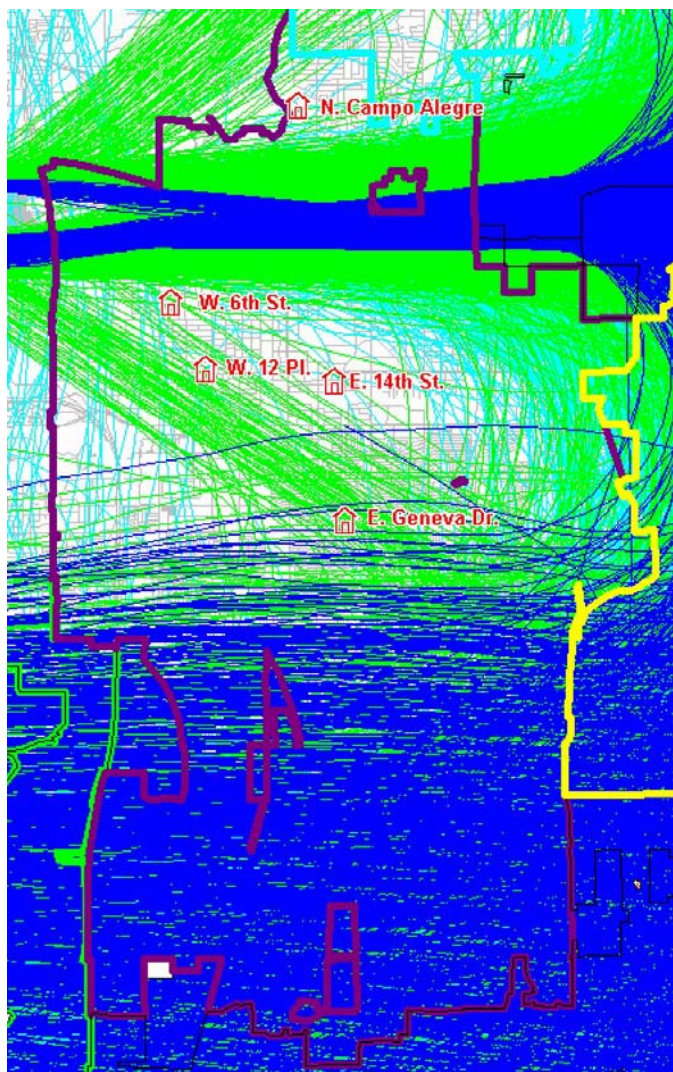
The split in jet and large commuter aircraft departures to the east and west of the Phoenix Sky Harbor International Airport is generally not as favorable for Tempe during the nighttime hours compared to daytime hours. In October 2004 63.8% went east during nighttime and 47.4% went east during daytime.




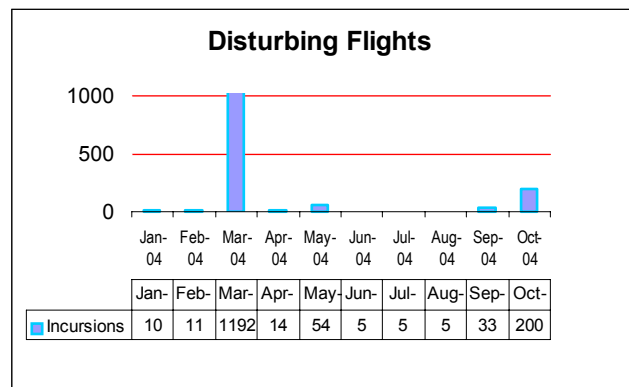
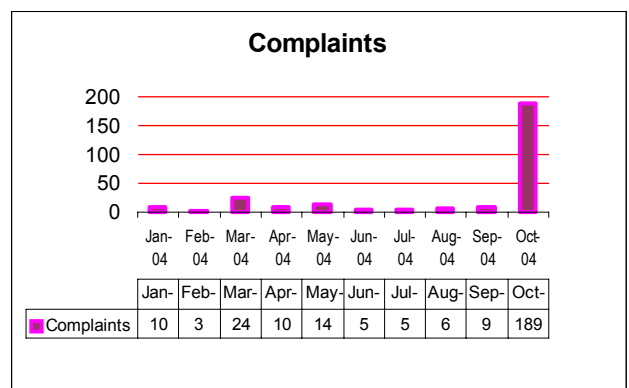
Day and nighttime departures are generated by a query covering day + evening hours and nighttime hours. Day = 7: 00 a.m. to 9:59:59 p.m. local time and Night = 9:59:59 p.m. to 7:00 a.m.

5. Complaints

The City of Tempe started registering aircraft noise complaints from Tempe residents in October 2000 after the opening of the third runway at Phoenix Sky Harbor International Airport. During October 2004, 5 residents filed 189 aircraft noise complaints with the City of Tempe. 98% filed by one resident. 200 flights were identified as disturbing, mainly because of the noise impacts. Three complaints dealt with aircraft off course, aircraft making unusual or what seemed to be hazardous maneuvers. One complaint dealt with the noise from news helicopters hovering low over a neighborhood for extended periods of time and thus caused sleep deprivation for a resident who works shifts. This month's noise complaints includes one resident leaving four complaint messages listing altogether 10354 noise events as being disturbing from September 26, 2004 through October 24, 2004.



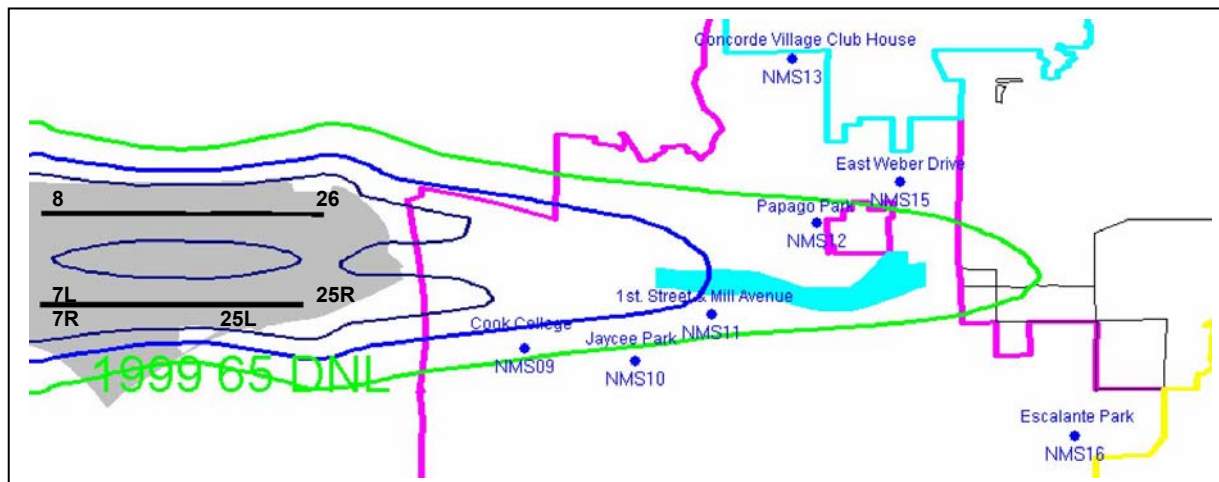
Green flight tracks = Departures outside the Tempe Corridor
 Blue flight tracks = Departures inside the Tempe Corridor
 Turquoise flight tracks = Arrivals
 Addresses of residents that filed complaints = 



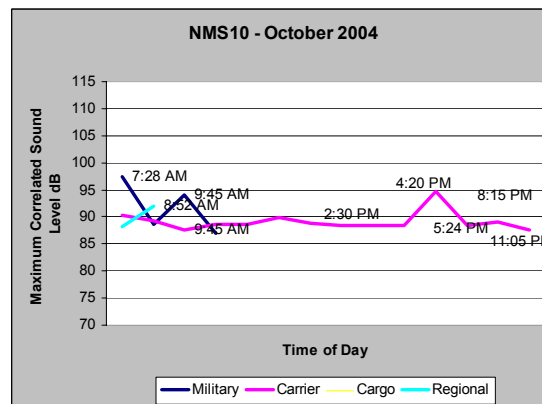
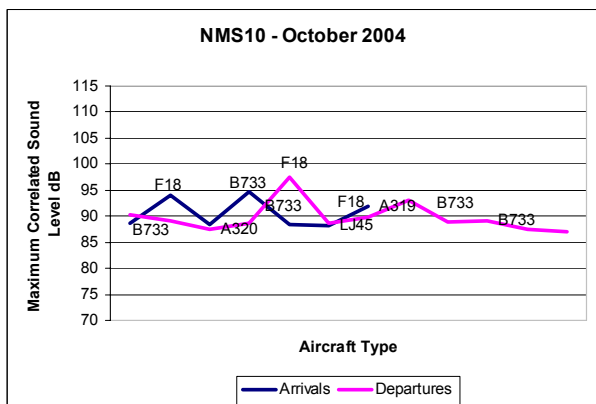
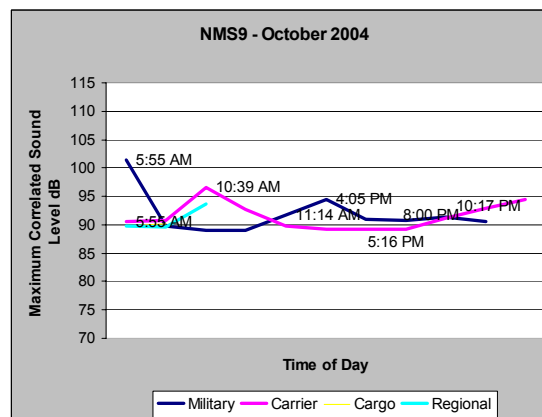
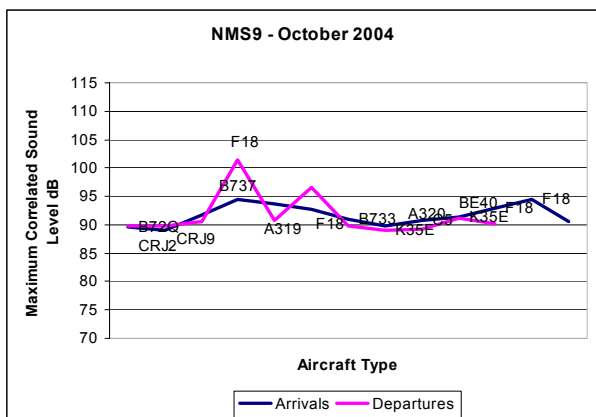
The graph does not include the 10354 noise events reported in October 2004 by one resident.

6. Noise

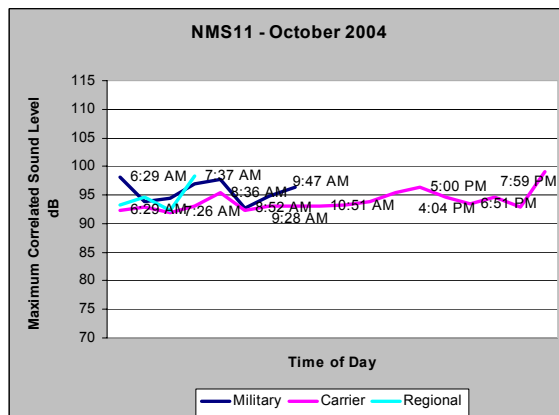
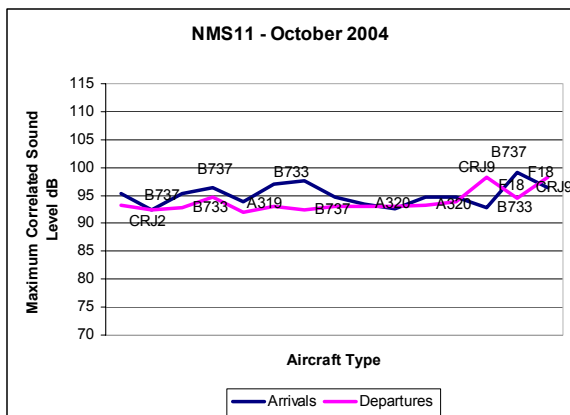
The Phoenix Sky Harbor International Airport Noise and Flight Track Monitoring System include 9 fixed Noise Monitoring Stations (NMS) in Tempe located in north Tempe.



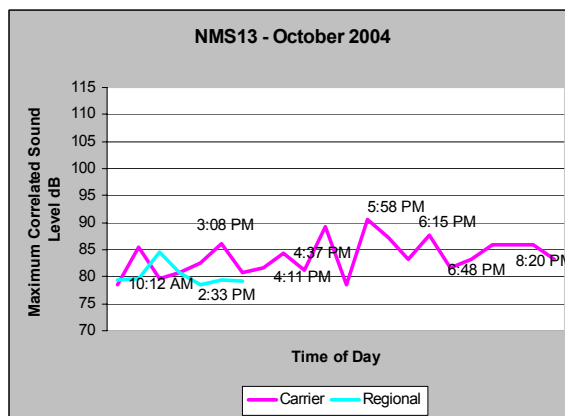
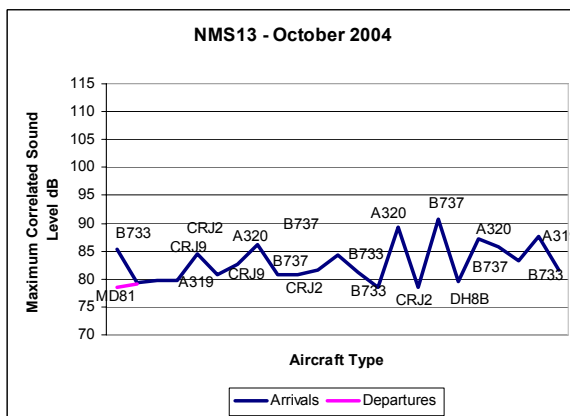
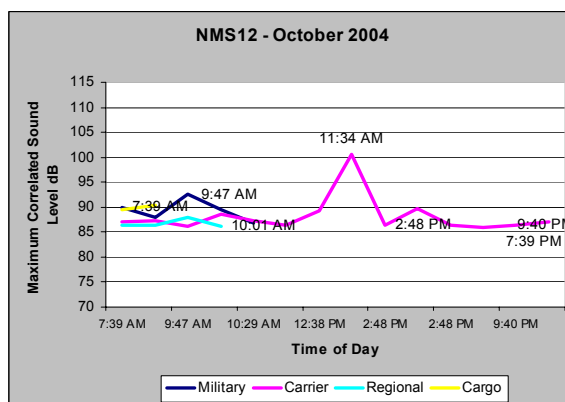
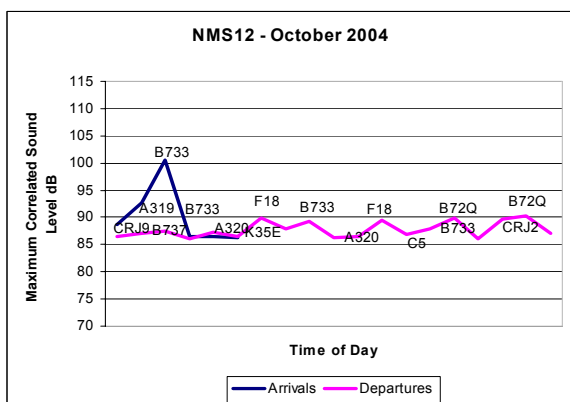
8 monitors are currently in operation, and below data on the highest (Lmax) noise levels registered during this month have been correlated with flight track information from departure and arrival traffic over the area these monitors are located. A time graph show time of day when large aircraft activity reached the highest (Lmax) noise levels.



NMS 9 and 10 are south of the extended centerline for the south runway and pick up a lot of the side line noise created by center runway departures and arrivals to the south runway. KC-135B tanker operations or other military activity is also registered by these monitors because this activity is mainly concentrated to the south side of the airport.

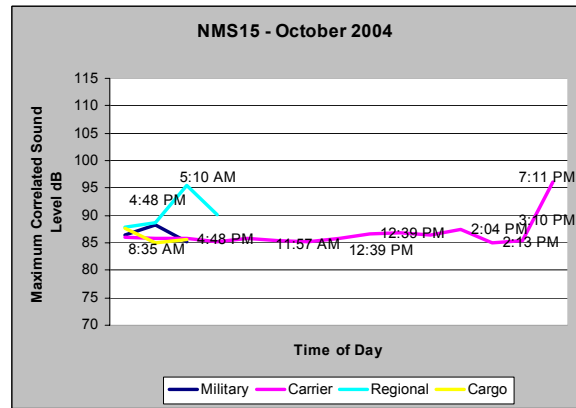
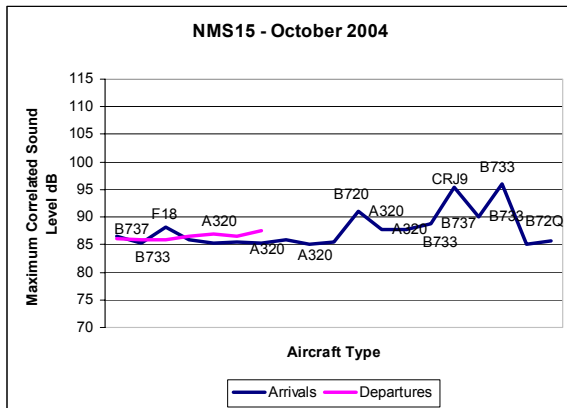


NMS 11 is in the downtown area close to the Town Lake and register noise from all 3 runways, characterized by a relatively even and high maximum levels from both arrival and departure operations.



NMS 12, 13 and 15 located to the north of the Town Lake register to a large extent noise from the activities to and from the north runway and from the center runway for aircraft departing diagonally

towards the northeast. Including only the highest correlated noise readings (Lmax) for this month it appears that the noise impact from arriving aircraft is quite significant over the area of Papago Park and Curry Road. The flight profile for aircraft arriving to the north runway is somewhat lower compared to aircraft arriving to the south runway. This is because of the runway threshold for the north runway, Runway 26, is located farther to the east than the threshold for the south runway, Runway 25L.



NMS 16 is located farther out to the east than the other noise monitors and pick up aircraft on final approach from the south east and departing aircraft that turn towards the south and southeast at 4DME.

